Lesson Title	To Pee or Not to Pee
Length of Lesson	50 min class period
Created By	Kendra Wright
Subject	Science
Grade Level	7th grade
State Standards	7th grade Inquiry: 1c, 1d, 1h, 2b
DOK Level	DOK 1, DOK 2, DOK 3
DOK Application	Recall, Skill/Concept, Strategic Thinking
National Standards	5-8th grade: A (Inquiry), B (Physical Science), C (Life Science)
Graduate Research Element	The lesson's purpose is to stimulate scientific method. Also, the lesson includes the use of pH indicators and microbial system interactions which are important to my research.

Student Learning Goal

MS 7th grade

1c. Collect and display data using simple tools and resources to compare information (using standard, metric, and non-standard measurement). (DOK 2)
1d. Organize data in tables and graphs and analyze data to construct explanations and draw conclusions. (DOK 3)
1h. Make relationships between evidence and explanations. (DOK 2)
2b. Categorize types of chemical changes, including synthesis and decomposition reactions, and classify acids and bases using the pH scale and indicators. (DOK 2)

National Science Education Standards 5-8th grade

Content Standard A: Use appropriate tools and techniques
Content Standard B: Properties and changes in matter
Content Standard C: Structure and function in living systems

Materials Needed (supplies, hand-outs, resources):

Ammonia, vinegar, apple juice, yeast, food coloring, pH paper, glucose testing strips, urine sample bottles, data table sheet, mini boards, markers, scissors

Lesson Performance Task/Assessment:

The lesson's task is to perform urinalysis with three different samples of fake urine. The fake urine will be mixtures of ammonia, vinegar, food coloring, yeast, and apple juice. The students will be asked to determine any health conditions present from color/cloudiness test, pH, and the presence of glucose. Color/cloudiness can be an indicator of infection, while pH and glucose can be an indicator of diabetes.

Lesson Relevance to Performance Task and Students:
The purpose of the lesson is to emphasize the use of data collection and drawing conclusions within the scientific method. Urinalysis is a real-life example of science and technology in the healthcare field. This lab will demonstrate the scientific method's use in real-life medicine.

Anticipatory Set/Capture Interest:
Students will be given three urine samples, which should grab their attention. Also, they get to pretend to be doctors collecting data.

Guided Practice:
The proper use of pH paper and glucose testing strips will be explained. Also, students will have data sheets (see attached) which they will fill out as groups of four and afterwards we will go over as a class.

Independent Practice:
Groups of four students will collect data on samples' color/cloudiness, pH, and glucose (directions attached).

Remediation and/or Enrichment:
Class discussion on the data and interpretations/diagnosis will be enriching. Also, student groups will create and present mini boards on the testing, data, and conclusions.

Check(s) for Understanding:
Class discussion and mini boards will be used to check for understanding.
Questions:

1. How could you determine if a patient had diabetes?
2. What are some signs of urinary tract infections?
3. What data was used to make the diagnosis of dehydration?

Closure:
I will finish the lab by emphasizing the use of data collecting and drawing conclusions in the scientific method.

Possible Alternate Subject Integrations:
Health subjects such as urinary tract are possible alternate integrations.

Teacher Notes: Lesson is to be fun and interactive.